Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02152, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02152
EGU General Assembly 2008

The Rosetta encounter with 2867 Steins

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The International Rosetta Mission is one of ESA's Planetary Cornerstone Missions on its way to rendezvous with comet 67P/Churyumov-Gerasimenko. Whilst the comet rendezvous is its main goal, Rosetta will also have close encounters with two main belt asteroids, 2867 Steins and 21 Lutetia. The first fly-by, at E-type asteroid 2867 Steins, has been scheduled from 8 August 2008 to 3 October 2008 with closest approach on 5 September 2008 at about 18:30 UT. The spacecraft will pass the asteroid with a relative velocity of 8.62 km/s at a targeted minimum fly-by distance of 800 km. The selected fly-by strategy allows continuous observations of the asteroid before, during and after closest approach. The fly-by will be on the Sun side of the asteroid in the plane defined by the relative velocity and the Sun direction; hence the fly-by will go through phase angle zero. Many of the scientific instruments on board Rosetta will be switched on to investigate the asteroid. Imaging and spectral observations will be obtained covering wavelengths from the UV to sub-mm. In addition a number of in-situ measurements of the asteroid and its direct environment will be performed. An overview of the planned Rosetta asteroid fly-by will be given.